

1   WHAT IS CLAIMED IS:

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3           1. An aqueous dispersion for chemical mechanical  
4   polishing comprising abrasive grains, wherein the  
5   abrasive grains include:

6           (A) simple particles composed of at least one  
7   selected from inorganic particles and organic particles,  
8   and

9           (B) composite particles.

1           2. The aqueous dispersion for chemical mechanical  
2   polishing according to claim 1, wherein the simple  
3   particles (A) making up the abrasive grains are  
4   composed of inorganic particles, and the composite  
5   particles (B) are composed of inorganic organic  
6   composite particles obtained by integrally combining  
7   organic particles with inorganic particles.

1           3. The aqueous dispersion for chemical mechanical  
2   polishing according to claim 1 or 2, wherein the  
3   overall content of all the abrasive grains is 0.11 to  
4   20 % by mass, the content of the simple particles (A)  
5   is 0.1 to 19.99 % by mass, and the content of the  
6   composite particles (B) is 0.01 to 19.9 % by mass.

1           4. The aqueous dispersion for chemical mechanical  
2   polishing according to any one of claims 1 to 3,

3 wherein a value of a specific removal rate ratio  
4 (RBM/RCu) represented by a ratio of the removal rate  
5 (RBM) of a barrier metal film to the removal rate (RCu)  
6 of a copper film in the case where the copper film and  
7 barrier metal film are polished under the same  
8 conditions is 0.5 to 200.

1       5. The aqueous dispersion for chemical mechanical  
2 polishing according to any one of claims 1 to 3,  
3 wherein the value of the specific removal rate ratio  
4 (RBM/RCu) represented by a ratio of the removal rate  
5 (RBM) of a barrier metal film to the removal rate (RCu)  
6 of a copper film in the case where the copper film and  
7 barrier metal film are polished under the same  
8 conditions is 10 to 200.

1       6. The aqueous dispersion for chemical mechanical  
2 polishing according to any one of claims 1 to 3,  
3 wherein the value of the specific removal rate ratio  
4 (RBM/RCu) represented by a ratio of the removal rate  
5 (RBM) of a barrier metal film to the removal rate (RCu)  
6 of a copper film in the case where the copper film and  
7 barrier metal film are polished under the same  
8 conditions is 0.5 to 3.

1       7. A process for producing a semiconductor device,  
2 comprising the step of polishing a surface to be

3 polished of a semiconductor material with the aqueous  
4 dispersion for chemical mechanical polishing according  
5 to any one of claims 1 to 6.

1       8. A process for producing a semiconductor device,  
2 comprising the first polishing treatment step of mainly  
3 polishing a copper film of a surface to be polished of  
4 a semiconductor material and the second polishing  
5 treatment step of mainly polishing a barrier metal film  
6 with the aqueous dispersion for chemical mechanical  
7 polishing according to claim 5 or 6, conducted after  
8 the first polishing treatment step.